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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/775,889
Filing Date: February 09, 2004
Appellant(s): SCHAUER ET AL.

Salim Hasan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/16/2008 appealing from the Office action mailed 1/18/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. The examiner has withdrawn the 35 USC 112 1st paragraph rejection.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

EP 0 528 602 A1	Bugnon et al.	03-1993
US 3393162	Cox et al.	07-1968
US 3884871	Herman et al.	05-1975
NL 7741035 A,	Stamicarbon BV	June 21, 1979.

Marie, Emmanuelle "The Controlled Solvolysis of Ethylene-Vinyl Acetate Copolymers"
ACS Publications, July 21, 2001.

"Addition Polymerization", Encyclopedia of Polymer Science and Engineering, Volume
1, pages 470-471.

Noro et al., "Hydrolysis of Polyvinyl Acetate to Polyvinyl Alcohol; Polyvinyl Alcohol—
Properties and Application; 1973, pp. 99-121; John Wiley & Sons; London, England.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

B.

Claims 1, 3-5, 7-8, 10, 12, 14, and 16 are rejected under 35 U.S.C. 102(b) as being
anticipated by EP 0 528 602 by Bugnon et al., hereafter Bugnon.

Claim 1 and 12: Bugnon teaches coating a particulate pigment with a polymer
(abstract). Bugnon discloses coating the pigment with a polyvinyl alcohol by forming the
polyvinyl alcohol by a solvolysis reaction of a vinyl acetate polymer and pigment

dispersion (Page 2, lines 35-38). Bugnon discloses dispersing a pigment in a solution of a polymer to provide coating onto the pigment (Page 2, line 56-Page 3, line 8).

Bugnon process describes:

- (1) bringing a solution of a PVAc in an organic solvent
- (2) subjecting the PVAc to a solvolysis reaction to form PVOH
- (3) coating the surface of a substrate.

Each of the preceding steps are required by the claims as written. Specifically, the specification on page 3 and Example 1 discloses the polymer derivative is preferably PVAc, the preferred deposited polymer includes PVOH and the solvent is usually an organic solvent. Therefore, while appellants contend that Bugnon only discloses adsorption, Bugnon discloses the same process steps as claimed by the appellant using the same or substantially similar materials. Therefore, it is unclear, from the claims as written how the appellant is achieving this "precipitation" and Bugnon fails to achieve the same. Since the prior art and the present claims, reflected by claim 1, teach all the same process steps using the same materials as defined by the appellants specification and examples, the results obtained by appellants process must necessarily be the same as those obtained by the prior art. Therefore by performing the 3-step process above, it must necessarily result in a less soluble form of the polymer. Either 1) the appellant and the prior art have different definitions for various, or 2) the appellant is using other process steps or parameters or specific combinations of materials that are not shown in the claims. Therefore, while the appellants contend that the prior art disclose adsorption and such is not encompassed by the claim, the examiner notes the

specification and the present claims fails to exclude depositing by adsorption, but rather only discloses deposition by more than just adsorption. As discussed in section 2, and incorporated herein by reference in its entirety, the process of Bugnon discloses a solvolysis reaction and therefore does disclose depositing by more than just adsorption.

Claim 3: Bugnon discloses a polyvinyl acetate, which includes a unsaturated group on a backbone chain.

Claims 4 and 5: Bugnon discloses producing active groups and also discloses the step of crosslinking the polymer after coating the pigment (Page 4-Page 5).

Claim 7: Bugnon discloses washing the coated pigment (Page 4, line 23).

Claims 8, 10, and 16: Bugnon discloses a pigment substrate and a polymer with a molar mass in the range as claimed (abstract, Page 2, lines 35-38).

Claim 14: Bugnon discloses using a metallic pigment (Page 4, line 37).

C.

Claims 1, 3-5, 7-8, 10, 12, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 528 602 by Bugnon et al., hereafter Bugnon in view of "Hydrolysis of Polyvinyl Acetate to Polyvinyl Alcohol" by Noro, hereafter Noro.

Claim 1 and 12: Bugnon teaches coating a particulate pigment with a polymer (abstract). Bugnon discloses coating the pigment with a polyvinyl alcohol by forming the polyvinyl alcohol by a solvolysis reaction of a vinyl acetate polymer and pigment dispersion (Page 2, lines 35-38). Bugnon discloses dispersing a pigment in a solution

of a polymer to provide coating onto the pigment (Page 2, line 56-Page 3, line 8).

Bugnon discloses precipitating the PVOH out of the solution of PVAc and an organic solvent to form the coating on the pigment, but fails to disclose precipitating the PVOH as a result of the solvolysis reaction.

However, Noro teaching of varying methods to form PVOH from PVAc discloses a known and suitable method for precipitating PVOH out of solution includes using solvolysis (94, lines 1-10). Noro discloses providing a PVAc in organic solvent, similar to that suggested by Bugnon, and the solvolysis reaction proceeds rapidly with "precipitation of PVOH without stirring." Therefore, it would have been obvious to one skilled in the art at the time of the invention to have modified Bugnon to have provided the solvolysis reaction as taught by Noro with a reasonable expectation of successfully providing a precipitate to coat pigments. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Additionally, such a precipitation as taught by Bugnon in view of Noro is depositing by more than just adsorption as required by the present claims.

Claim 3: Bugnon discloses a polyvinyl acetate, which includes a unsaturated group on a backbone chain.

Claims 4 and 5: Bugnon discloses producing active groups and also discloses the step of crosslinking the polymer after coating the pigment (Page 4-Page 5).

Claim 7: Bugnon discloses washing the coated pigment (Page 4, line 23).

Claims 8, 10, and 16: Bugnon discloses a pigment substrate and a polymer with a molar mass in the range as claimed (abstract, Page 2, lines 35-38).

Claim 14: Bugnon discloses using a metallic pigment (Page 4, line 37).

D., E. and F.

Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro and further in view of Derwent Abstract NL 7714035A.

Bugnon in view of Noro is applied here as applied above but fails to disclose controlling the solvolysis reaction. However, Derwent Abstract NL 7714035A discloses forming PVOH from a PVAC in 1-4 C alcohols, similar to that disclosed by Bugnon in view of Noro, and effectively controlling the solvolysis to proceed to any degree desired. Therefore, taking the references collectively, it would have been obvious to one of ordinary skill in the art to have modified Bugnon in view of Noro to control the process as suggested by Derwent Abstract NL 7714035A to reap the benefits of controlling the amount of precipitate and therefore control the thickness of deposited layer.

G.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon as applied to claim 1 above and further in view of Marie publication, hereafter Marie.

Bugnon teaches all the limitations of these claims as discussed in the 35 USC 102(b) rejection above, however, the reference fails to disclose partial solvolysis.

However, Marie, teaches poly vinyl alcohol is formed by solvolysis of poly vinyl acetate and discloses controlling the hydrolysis depending on the desired product

(Introduction). Marie discloses using partial solvolysis of a poly vinyl acetate to provide poly(vinyl alcohol) (introduction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bugnon to use partial solvolysis as suggested by Marie to provide a desirable polyvinyl alcohol because Marie discloses it is advantageous to control solvolysis, including performing only partial solvolysis, when forming poly vinyl alcohol from poly vinyl acetate

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro as applied to claim 1 above and further in view of Marie publication, hereafter Marie.

Bugnon in view of Noro teaches all the limitations of these claims as discussed in the 35 USC 102(b) rejection above, however, the reference fails to disclose partial solvolysis.

However, Marie, teaches poly vinyl alcohol is formed by solvolysis of poly vinyl acetate and discloses controlling the hydrolysis depending on the desired product (Introduction). Marie discloses using partial solvolysis of a poly vinyl acetate to provide poly(vinyl alcohol) (introduction).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bugnon in view of Noro to use partial solvolysis as suggested by Marie to provide a desirable polyvinyl alcohol because Marie discloses it

is advantageous to control solvolysis, including performing only partial solvolysis, when forming poly vinyl alcohol from poly vinyl acetate

H

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of "Addition Polymerization". Encyclopedia of Polymer Science and Engineering, Volume 1. New York. Pg 470-471.

Bugnon teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection except, however, Bugnon fails to teach of a crosslinking reaction is a free-radical, addition, or condensation reaction.

However, "Addition Polymerization" teaches that vinyls are known in the art to crosslink using addition polymerization (Paragraph 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon to use the addition crosslinking reaction as suggested by "Addition Polymerization" to provide a desirable crosslinking because Bugnon teaches of using a crosslinking reaction to bond a vinyl polymer to the substrate surface and "Addition Polymerization" teaches that vinyl polymers are known in the art to crosslink using a addition reaction.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of "Addition Polymerization". Encyclopedia of Polymer Science and Engineering, Volume 1. New York. Pg 470-471.

Bugnon in view of Noro teaches all the limitations of these claims as discussed above in the 35 USC 103(a) rejection except, however, Bugnon in view of Noro fails to teach of a crosslinking reaction is a free-radical, addition, or condensation reaction.

However, "Addition Polymerization" teaches that vinyls are known in the art to crosslink using addition polymerization (Paragraph 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon in view of Noro to use the addition crosslinking reaction as suggested by "Addition Polymerization" to provide a desirable crosslinking because Bugnon in view of Noro teaches of using a crosslinking reaction to bond a vinyl polymer to the substrate surface and "Addition Polymerization" teaches that vinyl polymers are known in the art to crosslink using a addition reaction.

I.

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of US Patent 3393162 by Cox et al., hereafter Cox.

Bugnon discloses coating a polymer coating pigment and discloses various types of pigments, including metallic complexes and dyestuff pigments (Page 4, line 37), but fails to disclose coating a flat substrate or an aluminum substrate.

However, Cox, teaching of a method of providing polymer coatings on pigments, discloses aluminum flakes, which are inherently flat in structure, benefit from a polymer coating and also discloses aluminum flakes are known substitutes of dye pigments (Example 8, column 1, lines 30-38). Substitution of equivalents requires no express

motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967).

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of US Patent 3393162 by Cox et al., hereafter Cox.

Bugnon in view of Noro discloses coating a polymer coating pigment and discloses various types of pigments, including metallic complexes and dyestuff pigments (Page 4, line 37), but fails to disclose coating a flat substrate or an aluminum substrate.

However, Cox, teaching of a method of providing polymer coatings on pigments, discloses aluminum flakes, which are inherently flat in structure, benefit from a polymer coating and also discloses aluminum flakes are known substitutes of dye pigments (Example 8, column 1, lines 30-38). Substitution of equivalents requires no express motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967).

↓

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of US Patent 3884871 by Herman et al ("Herman").

Bugnon teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection, however, Bugnon fails to explicitly teach of a forming a nano layer on the surface of the substrate.

Herman, teaching of a process of coating pigment particles with a polymer, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon to use the nanolayer suggested by Herman to provide a desirable pigment coating because Bugnon teaches using a polymer solution to coat a pigment particulate and Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a polymer solution.

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bugnon in view of Noro in view of US Patent 3884871 by Herman et al ("Herman").

Bugnon in view of Noro teaches all the limitations of these claims as discussed above in the 35 USC 103(a) rejection, however, Bugnon in view of Noro fails to explicitly teach of a forming a nano layer on the surface of the substrate.

Herman, teaching of a process of coating pigment particles with a polymer, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon in view of Noro to use the nanolayer suggested by Herman to provide a desirable pigment coating because Bugnon in view of Noro teaches using a polymer solution to coat a pigment particulate and Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a polymer solution.

(10) Response to Argument

B.

Rejection of Claims 1, 3-5, 7-8, 10, 12, 14, and 16 under 35 U.S.C. 102(b) as anticipated by EP 0 528 602 by Bugnon et al., hereafter Bugnon.

The appellant has argued against the Bugnon reference stating that the reference fails to disclose thereby depositing the less soluble polymer on the surface of the substrate in a manner involving more than just adsorption on the surface of the substrate. The examiner disagrees and contends that the process as taught by Bugnon discloses various processes, including the solvolysis reaction, that results in the process of Bugnon depositing in a manner involving more than just adsorption on the surface of the substrate. The appellants contend that the solvolysis reaction as taught by Bugnon results in depositing by adsorption and while the examiner does not necessarily agree, this is moot. The depositing involves more than just adsorption, including among other things, solvolysis reaction and therefore the process reasonably reads on the claimed limitation.

The examiner notes the appellant's lengthy discussion regarding adsorption and depositing, where the appellant argues that adsorption involves a solute accumulates on the surface by consequences of a surface energy and deposit is synonymous with precipitate. The examiner disagree that adsorption is not considered a depositing and maintains the prior position. *The appellant has failed to provide any convincing factual evidence that the process of Bugnon does not deposit as encompassed by the claims.* As supplied by the appellant, deposit has varying definitions in the verb form (as required by the claim), among them "to be placed, inserted, precipitated..." (See Exhibit A) or "to put down ..." (Exhibit B). Therefore, while the appellants are correct in determining the precipitation may be a type of depositing, depositing is clearly not limited to such a narrow interpretation. As seen above, the definition is inclusive of placing, or putting down. As discussed above, the appellants contend that adsorption is the putting down of or the placing of materials on the surface of a substrate by surface energy. Therefore, contrary to the appellant's contention, giving depositing its broadest reasonable interpretation consistent with the specification, such a term encompasses adsorption. The specification fails to specifically define the term depositing and during patent examination, the pending claims must be "given the broadest reasonable interpretation consistent with the specification" by giving words their plain meaning unless the specification provides a clear definition. See *In re Prater* 415 F.2d 1393 1404-05 162 USPQ 541 and *In re Zletz* 893 F.2d 319, 321, 13 USPQ2d 1320.

Additionally, the examiner notes the appellant argues that the claims as written fail to even encompass that which the appellants are arguing, where "less soluble" does

not necessarily translate into precipitation, but only that the converted polymer may be only a small fraction less soluble, but still in fact soluble. Therefore, even in the event that the PVOH is soluble in water, the fact that the PVOH is in a form that deposits onto the surface of the particle, it is the examiners position that the PVOH is a form that is less soluble, otherwise it would not be forming a coating.

The appellants argue against the Bugnon reference, stating that the reference discloses adsorption and does not precipitate on the substrate, and provides a lengthy discussion illustrating the differences between deposition and absorption, which have been addressed above. However, it is unclear from the claims how the appellant is achieving this claimed "precipitation" and the prior art of Bugnon only discloses adsorption. Bugnon process describes:

- (1) bringing a solution of a PVAc in an organic solvent
- (2) subjecting the PVAc to a solvolysis reaction to form PVOH
- (3) coating the surface of a substrate.

Each of the preceding steps are required by the claims as written. Specifically, the specification on page 3 and Example 1 discloses the polymer derivative is preferably PVAc, the preferred deposited polymer includes PVOH and the solvent is usually an organic solvent. Therefore, while appellants content that Bugnon only discloses adsorption, Bugnon discloses the same process steps as claimed by the appellant using the same or substantially similar materials. Therefore, it is unclear, from the claims as written how the appellant is achieving this "precipitation" and Bugnon fails to achieve the same. Since the prior art and the present claims, reflected by claim 1, teach all the

same process steps using the same materials as defined by the appellants specification, the results obtained by appellants process must necessarily be the same as those obtained by the prior art. Therefore by performing the 3-step process above, it must necessarily result in a less soluble form of the polymer. Either 1) the appellant and the prior art have different definitions for various, or 2) the appellant is using other process steps or parameters or specific combinations of materials that are not shown in the claims.

The appellant argues that the process as claimed using various solvent, concentration and temperature parameters to induce adsorption rather than precipitation. However, the examiner notes that claim fails to limit the process to only precipitation and also the process as claimed includes positive recitation of only a limited number of process steps. Specifically, the claim as written only (1) bringing a solution of a PVAc in an organic solvent and (2) subjecting the PVAc to a solvolysis reaction to form PVOH and marginally (3) coating the surface of a substrate. Therefore, since the Bugnon teaches all the positively recited steps and the appellant further claims results ("thereby") of performing the positive steps, the process of Bugnon must necessarily result in the claimed results. In *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1329, 74 USPQ2d 1481, 1483 (Fed. Cir. 2005), the court held that when a "whereby" clause states a condition that is material to patentability, it cannot be ignored in order to change the substance of the invention." *Id.* However, the court noted (quoting *Minton v. Nat'l Ass'n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003)) that a "whereby clause in a method claim is not given weight when it

simply expresses the intended result of a process step positively recited." See MPEP 2111.04. *It is the examiners position that in the context of the present claims thereby is claiming intended results of the positively recited process steps.*

In response to the appellants arguments regarding "thereby depositing" requiring more than mere adsorption and the prior art only discloses adsorption, the examiner notes that the claim language is extremely broad and only requires an additional element present to read on "more than just adsorption". Specifically, the examiner maintains the position that Bugnon discloses more than mere adsorption, Bugnon discloses hydrolysis reaction which thereby deposits in a manner involving more than just adsorption. As a simple example, Bugnon, at page 3 lines 8-11, discloses depositing by mere adsorption or adding water to the organic solvent to help in facilitation of adsorption. Therefore, in this context, the addition of the water results in a coating that is done by more than just adsorption.

The appellant's arguments regarding the differences between precipitation and adsorption are noted, however, since the claims fail to require precipitation and only require a form that is less soluble, but may still be soluble, the arguments are deemed moot as not commensurate in scope with the claims.

The appellants argue that one skilled in the art would understand from the specification that the "term" depositing in the claims related to build up of a coating layer through controlled precipitation. This statement is unsupported by any factual evidence on the record and thus is deemed moot. Additionally, the claims are given their broadest reasonably interpretation consistent with the specification and the specification

fails to disclose controlled precipitation or for that matter precipitation. The specification only refers to a less soluble form and there is no disclosure or factual evidence on the record to support the position that one of ordinary skilled in the art would, under all circumstances, understand that less soluble is precipitation.

In response to the appellant's arguments against Bugnon, arguing the reference teaches away from precipitation, and that one of ordinary skill in the art would be motivated to select the concentration, temperature, and solvent to induce adsorption. However, the examiner notes that the claims encompass all possible solvents, concentrations, and temperatures. Such a teaching is not a teaching away of the claimed invention.

The appellant argues that multiple layers can be deposited using the claimed process and such a process including in a finely controlled manner, versus uncontrolled precipitation and flocculation. This argument is not persuasive because the claims fail to require such a limitation.

All arguments that are not specifically addressed are not commensurate in scope with the claims because the appellant is arguing features that are not present in the claims or the arguments are not supported by any factual evidence and are thus deemed mere attorney speculation.

C.

Rejection of claims 1, 3-5, 7-8, 10, 12, 14, and 16 under 35 U.S.C. 103(a) over EP 0 528 602 by Bugnon et al., hereafter Bugnon in view of "Hydrolysis of Polyvinyl Acetate to Polyvinyl Alcohol" by Noro, hereafter Noro.

The appellant argues against the Noro reference, stating that the reference discloses precipitation from solution but fails to disclose coating. However, the examiner notes that the rejection is based on the combination of Bugnon with Noro and it is this combination that would suggest to one of ordinary skill in the art to modify the precipitation method as taught by Bugnon with that of Noro with a reasonable expectation of success.

The appellants, see Appeal brief page 7 second full paragraph, recognize that Bugnon discloses coating the substrate by precipitation induced by addition of a salt. Therefore, taking the references collectively, Bugnon discloses coating by precipitation, including PVOH from PVAC and Noro teaching of varying methods to form PVOH from PVAC discloses a known and suitable method for precipitating PVOH out of solution includes using solvolysis (94, lines 1-10). Noro discloses providing a PVAC in organic solvent, similar to that suggested by Bugnon, and the solvolysis reaction proceeds rapidly with "precipitation of PVOH without stirring." Therefore, it would have been obvious to one skilled in the art at the time of the invention to have modified Bugnon to have provided the solvolysis reaction as taught by Noro with a reasonable expectation of successfully providing a precipitate to coat pigments. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. In response to appellant's arguments against the references

individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Additionally, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741, 82 USPQ2d.

In response to the appellant arguments against Bugnon and Noro stating that the references fail to disclose a kinetically controlled reaction, the examiner notes that the claims rejected under the combination of references fail to require such kinetic control and thus this argument is deemed moot.

D., E. and F.

Rejection of Claims 17-20 under 35 U.S.C. 103(a) over Bugnon in view of Noro and further in view of Stamicarbon (Derwent Abstract NL 7714035A).

The appellant argues against the Stamicarbon and Noro reference, stating that the reference discloses precipitation from solution but fails to disclose coating. However, the examiner notes that the rejection is based on the combination of Bugnon with Noro and it is this combination that would suggest to one of ordinary skill in the art

to modify the precipitation method as taught by Bugnon with that of Noro with a reasonable expectation of success.

The appellants, see Appeal brief page 7 second full paragraph, recognize that Bugnon discloses coating the substrate by precipitation induced by addition of a salt. Therefore, taking the references collectively, Bugnon discloses coating by precipitation, including PVOH from PVAC and Noro teaching of varying methods to form PVOH from PVAC discloses a known and suitable method for precipitating PVOH out of solution includes using solvolysis (94, lines 1-10) and Stamicarbon discloses controlled solvolysis of PVAC to result in a desired portion PVOH. Noro and Stamicarbon discloses providing a PVAC in organic solvent, similar to that suggested by Bugnon.

Stamicarbon discloses a method for effectively controlling the solvolysis to proceed to any degree desired. Therefore, taking the references collectively, it would have been obvious to one of ordinary skill in the art to have modified Bugnon in view of Noro to control the process as suggested by Stamicarbon to reap the benefits of controlling the amount of precipitate and therefore control the thickness of deposited layer. Additionally, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR Int'l Inc. v. Teleflex Inc.*, 127 S Ct. 1727, 1741, 82 USPQ2d.

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

G.

Rejections of Claims 9 and 15 under 35 U.S.C. 103(a) over Bugnon in view of Marie or in view of Noro and Marie.

The appellant has argued against Marie reference stating that such a reference fails to disclose solvolysis reaction to deposit on a substrate, however, in response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Specifically, Bugnon discloses solvolysis reaction to deposit on the substrate surface and the rejection is based on the combinations of reference and one of ordinary skill in the art could have predicted success results of deposition on a substrate.

The arguments with respect to Bugnon and Noro are duplicates of those specifically addressed above in sections B and C, each of which are incorporated herein by reference.

H

Rejections of Claims 9 and 15 under 35 U.S.C. 103(a) over Bugnon in view of Mark, or in view of Noro and Mark, wherein Mark is "Addition Polymerization". Encyclopedia of Polymer Science and Engineering. Volume 1. New York. Pg 470-471.

The appellant has argued against Mark reference stating that such a reference fails to disclose solvolysis reaction to deposit on a substrate, however, in response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). Specifically, Bugnon discloses solvolysis reaction to deposit on the substrate surface and the rejection is based on the combinations of reference and one of ordinary skill in the art could have predicted success results of deposition on a substrate.

Mark teaches that vinyls are known in the art to crosslink using addition polymerization (Paragraph 3) and Bugnon discloses the step of crosslinking the polymer after coating the pigment (Page 4-Page 5). Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify the references to use the addition crosslinking reaction as suggested by Mark to provide a desirable crosslinking because Bugnon, or Bugnon in view of Noro, teaches of using a crosslinking reaction to bond a vinyl polymer to the substrate surface and Mark teaches that vinyl polymers are known in the art to crosslink using a addition reaction.

The arguments with respect to Bugnon and Noro are duplicates of those specifically addressed above in sections B and C, each of which are incorporated herein by reference.

I.

Rejections of Claims 9 and 15 under 35 U.S.C. 103(a) over Bugnon in view of Cox, or in view of Noro and Cox.

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Additionally, Cox teaches of providing polymer coatings on pigments, discloses aluminum flakes, which are inherently flat in structure, benefit from a polymer coating and also discloses aluminum flakes are known substitutes of dye pigments (Example 8, column 1, lines 30-38). Substitution of equivalents requires no express motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967). Since Bugnon discloses coating dye pigments with polymers and Cox discloses aluminum flakes benefit from polymer coatings, it would have been obvious to have utilized aluminum flakes with a reasonable expectation of successful and predictable results.

The arguments with respect to Bugnon and Noro are duplicates of those specifically addressed above in sections B and C, each of which are incorporated herein by reference.

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Rejections of Claims 9 and 15 under 35 U.S.C. 103(a) over Bugnon in view of Herman, or in view of Noro and Herman.

In response to appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Herman teaches coating pigment particles with a polymer, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale. Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Bugnon, or Bugnon in view of Noro to use the nanolayer suggested by Herman to provide a desirable pigment coating because Bugnon teaches using a polymer solution to coat a pigment particulate and

Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a polymer solution.

The arguments with respect to Bugnon and Noro are duplicates of those specifically addressed above in sections B and C, each of which are incorporated herein by reference.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

David Turocy

/David Turocy/

Examiner, Art Unit 1792

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